GAS

Chilton Co., Inc., Publishers, 198 So. Alvarado Street, Los Angeles 57, California

INDEX TO VOLUME XXXII

January Through December 1956

AUTHORS

Abbott, Amos H.—Control of underground gas leakage....Apr. 76

Allen, William R.—Standby power units protect unattended compressor station for Panhandle Eastern ...June 135

Ardrey, Rushton L. and E. E. Monteith Jr.—Bank financing for the gas industry .....March 84

Bachmann, G. K. and A. Lovretin Jr.—Photographing repaired meters increases efficiency in shop .....Sept. 64

Baird, Raymond C.—SoCal stresses noise control at Playa del Rey compressor facility .....Apr. 142

Ball, Douglas—What are the reasons for underground gas storage? .....Aug. 95

Beard, C. S.—For control systems—the simplest acceptable approach is the best .....Apr. 148

Beigie, George S.—East Ohio puts main under rail bridge to serve Solon .....Nov. 47

Boyer, R. L.—An explosion that shouldn't have happened—but did .....May 184

Brewer, C. R.—Consumers Gas streamlines office procedures to keep pace with demand for natural gas..Sept. 59

Cable, L. G. and Joe E. Eskew Jr.—Lessons learned from measurement of full well stream gas .....Mar. 154

Carter, James T.—Experience develops a preventive maintenance program for compressor engine magnetos..May 174

Casler, Fred—Aerial survey speeds construction .....May 168

Catt, C. D. and J. R. Hoffman—A compressor station emergency shutdown and venting system .....Apr. 137

Chapman, Frank M.—Anti-trust ruling may affect gas industry communication system lease-maintenance agreements .....Mar. 73

Chapman, Frank M.—Gas pipelines—proving ground for microwave radio .....Jan. 112

Chapman, Frank M.—The ever increasing importance of mobile radio facilities .....Jan. 51

Cooper, J. C. and A. C. Curtis—Internal maintenance solves many transmission problems .....Sept. 113

Corfield, Guy—Developments in gas utilization during the past decade .....Jan. 48

Cornelius, Jack H.—Peoples Gas improves efficiency of telephone order department .....July 47

Crane, M. D. and R. W. Miller—Peoples Natural finds odorization program has paid dividends .....Aug. 56

Curtis, A. C. and J. C. Cooper—Internal maintenance solves many transmission problems .....Sept. 113

Cushman, Jac A.—AGA public information program redoubles efforts .....Feb. 58

Ebdon, J. Fred—In the distribution operation, engineering has come into its own .....Jan. 40

Ebdon, J. Fred—Pipelines nearly doubled their mileage..Jan. 107

Ebdon, J. Fred—The American Louisiana Pipeline 16 distribution companies increase volumes of natural gas .....Oct. 64

Formulators and fabricators.....Oct. 69

The "expanding inch".....Oct. 127

The pipeline design.....Oct. 129

The construction operations.....Oct. 140

Line coating, cathodic protection.....Oct. 157

Ebdon, J. Fred—The story of Peoples Gas .....May 53

Ebdon, J. Fred—Western Washington celebrates arrival of natural gas.....Dec. 124

Eskew, Joe E. Jr. and L. G. Cable—Lessons learned from measurement of full well stream gas .....Mar. 154

Fletcher, Bowdon H.—Australia gasifies its brown coal ....July 52

Ford, S. D.—How to design your pipeline .....Feb. 116

Fugazzi, John F.—A current report on plastic pipe in distribution company operations .....Mar. 63

Gilmore, Ed R.—How to check meter performance with a differential gauge .....June 49

Gilmore, Wheeler Jr.—PGW adds compressor to distribution system .....Dec. 43

Gray, Howard S.—Prevention of freezing at metering, regulating stations .....June 121

Greco, Edward C.—Gasoline plant corrosion .....Mar. 144

Herking, Paul W. and Henry R. Myers—Standardization and prefabrication of district regulator stations.....Dec. 48

Hobbs, W. H. and T. R. Stilley—Training—The key to an effective cathodic protection system .....Mar. 54

Hoffman, J. R. and C. D. Catt—A compressor station emergency shutdown and venting system .....Apr. 137

Huck, Mary E.—Built-in kitchens are great—if they are planned right .....May 81

Hughen, Paul L.—On-stream pigging techniques .....Sept. 122

Hunziker, Lloyd A.—Compressor station foundation prevents transmission of vibration .....Apr. 80

Jackson, Richard C. and John W. Morton—Hydraulic drives for cooling fans at compressor stations .....Sept. 107

Jorgensen, Earl M. and Robert Wolff—How Arizona Public Service handles construction work.....Dec. 64

Joseph, James—New compressor station increases delivery to San Diego utility .....June 132

Joseph, James—SoCal utilizes compressors .....Nov. 43

Kayser, Paul—Management brings gas to the Pacific Coast .....Oct. 72

Kirk, Walter B. and E. H. Perry Jr.—Draft control method and equipment ..... June 55
Kniebes, D. V. and G. G. Wilson—Distribution system analysis with the electronic digital computer ..... Aug. 37
Kridner, Ken—Bellows-type orifice meter tested for gas measurement ..... July 105
Lafferty, H. B.—Gas dispatcher's experience with turbine compressor stations ..... Feb. 109
Laudani, Hermann—Holder heating is in focus as cold weather hits New England ..... Feb. 53
Lewis, Paul W.—Application of salt crock and soil stress tests in evaluation of protective coatings ..... Mar. 58
Libby, H. T.—The halogen lamp in gas distribution ..... June 53
Liecty, John L.—Exhaustive study leads to purchase of electronic computer for payroll accounting ..... Dec. 54
LoChiano, R.—Remote control of a gas pipeline compressor station ..... Dec. 109
Lovretin, A. Jr. and G. K. Bachmann—Photographing repaired meters increases efficiency in shop ..... Sept. 64
Manor, Paul A.—Automation..and the lubricated plug valve ..... July 56
Margo, B. A.—A novel approach to maintenance and replacement problems ..... Feb. 44
McCamish, H. H.—Operation of pipeline in Pakistan poses problems ..... Nov. 93
McDaniel, Ruel—Natural gas and plastic pipe team up to take over irrigation load in west Texas ..... Mar. 70
McDonell, William C. and Charles J. Sevey—Synthetic diaphragms for domestic gas meters ..... Apr. 69
McIntosh, George B. Jr.—Transco uses reciprocating engine to drive centrifugal compressor ..... May 164
McNutt, Louis C.—Automatic position welding process for piping ..... Apr. 158
Merritt, Glenn A.—A safety man takes a look at minimum barricade standards ..... Dec. 58
Miller, R. W. and M. D. Crane—Peoples Natural finds odorization program has paid dividends ..... Aug. 56
Minton, J. W.—Tests predict performance of plastic pipe at low temperatures ..... Mar. 60
Mitchell, Dean H.—A Million new customers in 1955 helped push the gas industry to all-time record highs ..Jan. 35
Monteith, E. E. Jr., and Rushton L. Ardrey—Bank financing for the gas industry ..... Mar. 84
Morton, John W. and Richard C. Jackson—Hydraulic drives for cooling fans at compressor stations ..... Sept. 107
Myers, Henry R. and Paul W. Herking—Standardization and prefabrication of district regulator stations ..... Dec. 48
Newberry, Dennis L.—Training pays everyone ..... Apr. 155
Olson, A. S.—Southern California Gas deterges a mountain pipeline ..... June 125
Page, Frederick W.—What does an investor look for in gas company stock? ..... Feb. 49
Parker, Marshall E.—High-silicon cast iron anodes in ground bed service ..... Mar. 141
Paver, Elmer C.—Meter helps combat stray current ..... May 72
Perry, E. H. Jr. and Walter B. Kirk—Draft control methods and equipment ..... June 55
Pinkerton, H. E. and J. G. Stephenson—Automation in the gas industry
1. Automatic control in gas transmission systems ...July 110
2. Implementing the automation of gas pipelines ...Aug. 101
Pogontcheff, R. Y.—Continuously integrated flow meter provides accurate gas measurement ..... June 58
Rauth, A. W.—How to move meters ..... Feb. 42
Regeimbal, Neil R.—Interior Secretary Seaton describes himself as a "middle-of-the-roader" ..... Aug. 114
Richards, A. W.—San Diego goes underground to increase storage facilities ..... May 67
Robey, Thomas Lee—Let's look at the heat pump ..... May 74
Russell, H. E.—Gas dries coated paper and saves $20,000 yearly ..... Mar. 91
Ruth, D. K.—Telemetering system saves money for distribution company ..... July 67
Salls, David M.—Design and application of centrifugal compressors ..... Dec. 105
Schopler, H. A.—Memomotion study aids utility ..... June 43
Sevey, Charles J. and William C. McDonell—Synthetic diaphragms for domestic gas meters ..... Apr. 69
Simkins, Murray K.—New 1130-bhp gas turbine shown to industrial press editors ..... Sept. 135
Stephenson, J. G. and H. E. Pinkerton—Automation in the gas industry
1. Automatic control in gas transmission systems ..July 110
2. Implementing the automation of gas pipelines ..Aug. 101
Stilley, T. R. and W. H. Hobbs—Training—The key to an effective cathodic protection system ..... Mar. 54
VanVleck, D. W.—Mid-Continent Pipe Line Co. develops gas scrubber-safety regulator unit ..... June 142
Vaughan, A. L.—Application of gas turbine-driven centrifugal pipeline compressors ..... Nov. 102
Warner, C. W.—Fundamentals of gas mixing
1. Control of gas mixing processes ..... Feb. 37
2. A look at the equipment ..... Mar. 75
3. Typical control systems, proportional peak shaving, and stand-by control ..... Apr. 83
Warren, John A.—Telemetering, remote control run system with minimum supervision ..... Sept. 49
Webb, James—New developments in design of domestic meters ..... Nov. 50
Weil, A. H.—Gasoline plants: How they operate and their importance to distribution companies ..... Feb. 121
Wilson, G. G. and D. V. Kniebes—Distribution system analysis with the electronic digital computer ..... Aug. 37
Wolff, Robert and Earl M. Jorgensen—How Arizona Public Service handles construction work ..... Dec. 64
Wright, Don—Boston Gas relocates 30-in. main without interrupting service ..... Sept. 54

DISTRIBUTION

Automatic regulator station replaces old Philadelphia holders ..... July 66
Automation . . . and the lubricated plug valve—by Paul A. Manor ..... July 56
Boston Gas relocates 30-in main without interrupting service—by Don Wright ..... Sept. 54
Clean-up time at Brooklyn Union ..... June 48
Compressor station foundation prevents transmission of vibration—by Lloyd A. Hunziker ..... Apr. 80
Control of underground gas leakage—by Amos H. Abbott ..... Apr. 76
Current report on plastic pipe in distribution company operations—by John F. Fugazzi ..... Mar. 63
Distribution system analysis with the electronic digital computer—by G. G. Wilson and D. V. Kniebes ..... Aug. 37
Ever increasing importance of mobile radio facilities, The—by Frank M. Chapman ..... Jan. 51
Halogen lamp in gas distribution, The—by H. T. Libby ..June 53
Holder heating is in focus as cold weather hits New England—by Hermann Laudani ..... Feb. 53
How Arizona Public Service handles construction work—by Robert Wolff and Earl M. Jorgensen ..... Dec. 64
How to check meter performance with a differential gauge—by Ed R. Gilmore ..... June 49
How to move meters—by A. W. Rauth ..... Feb. 42
How to move water heaters ..... May 71
Meter-handling trucks ..... Apr. 114
Meter helps combat stray current—by Elmer C. Paver ....May 72
Natural gas and plastic pipe team up to take over irrigation load in west Texas—by Ruel McDaniel ..... Mar. 70
New developments in design of domestic meters—by James Webb ..... Nov. 50
Ninth Annual *GAS* survey: Gas industry construction budgets ..... Apr. 53

Peoples Gas improves efficiency of telephone order department—by Jack H. Cornelius ..... July 47
Peoples Natural finds odorization program has paid dividends—by R. W. Miller and M. D. Crane ..... Aug. 56
PGW adds compressor to distribution system—by Wheeler Gilmore Jr. ..... Dec. 43
Photographing repaired meters increases efficiency in shop—by G. K. Bachmann and A. Lovretin Jr. ..... Sept. 64
Plastic pipe usage up in 1955 ..... Mar. 67
Safety man takes a look at minimum barricade standards—by Glenn A. Merritt ..... Dec. 58
San Diego goes underground to increase storage facilities—by A. W. Richards ..... May 67
Schedule board expedites gas service orders ..... Feb. 41
SoCal modernizes meter shop with electrostatic paint line ..... Aug. 50
SoCal unitizes compressors—by James Joseph ..... Nov. 43
Standardization and prefabrication of district regulator stations—by Paul W. Herking and Henry R. Myers ..... Dec. 48
Story of Peoples Gas, The—by J. Fred Ebdon ..... May 53
Survey of the personnel and administrative side of corrosion control, A ..... Mar. 49
Synthetic diaphragms for domestic gas meters—by William C. McDonell and Charles J. Sevey ..... Apr. 69
Telemetering, remote control run system with minimum supervision—by John A. Warren ..... Sept. 49
Telemetering system saves money for distribution company—by D. K. Ruth ..... July 61
Training—The key to an effective cathodic protection system—by T. R. Stilley and W. H. Hobbs ..... Mar. 54

EDITORIAL COMMENT

Communications, by Frank M. Chapman

California PUC hears arguments on mobile radio tariffs .. Dec. 129
Communications budgets up for 1956 ..... Apr. 165
Communications engineers invent device to aid microwave path survey ..... Mar. 157
Cybernetics for pipeliners ..... July 123
FCC denies reduced channel separation in 25-50-mc band Nov. 125
Keller discusses growth of industrial radio ..... Jan. 125
More on lease-maintenance ..... June 151
Recent trends in the communications aspects of data processing systems ..... Sept. 133
Recent trends in the communications aspects of data processing systems
Part 1. ..... Aug. 119
Part 2. ..... Sept. 133
San Diego expands internal telephone systems ..... May 189
Special committee asks FCC to revise application forms .. Oct. 167
System maintenance of two-way radio ..... Feb. 133

Corrosion Prevention, by Guy Corfield

Accelerated corrosion test ..... Oct. 86
Cathodic protection calls for co-existence ..... Feb. 65
Corrosion coupons ..... Aug. 88
Corrosion in gas operations ..... June 92
Corrosion-testing instruments ..... Mar. 92
Critical look at cathodic protection, A ..... May 111
Development of the redox probe ..... Sept. 71
Dual purpose pipe coating ..... Feb. 65
Effects of induced alternate current on a buried pipeline .. July 72
Experience with tape coatings for protection of distribution piping ..... Apr. 92
High-silicon cast iron anodes ..... Oct. 86
Insulating joint materials ..... Aug. 89
Protection of steel at tide-water exposures ..... Sept. 71
Selection of underground pipe coatings ..... Dec. 73
Tapes for underground pipe protection ..... Nov. 75
Training corrosion engineers ..... Mar. 92
What the corrosion engineer can do for management .... Jan. 117

Regulatory and Legislative Trends

Accelerated tax depreciation and utility rate-making ..... July 11
Canadian gas goes to market ..... Mar. 11
Cost of money and a utility's fair return ..... Dec. 11
FPC denies natural gas for boiler fuel ..... June 11
FPC pipeline certificate power is formidable ..... Sept. 11
FPC powerless to compel pipeline enlargements ..... Oct. 11
FPC pricing of pipeline-produced gas challenged by court ..... Feb. 11
Gas producers must try again for exemption ..... Apr. 11
Highway reimbursement for utility relocations ..... Aug. 11
Independent gas producers are losing their independence .. Jan. 11
Many utility regulators favor "balanced" rates ..... Nov. 11
Supreme Court multiplies FPC rate problems ..... May 11

Technical Trends, by Guy Corfield

Accepted limit values of air pollutants ..... July 17
AGA approval requirements ..... Oct. 25
Argon, now a not-so-rare gas ..... June 17
Atomic power meets some roadblocks ..... July 17
Certified heating value natural gas available from AGA .. Feb. 15
Cost of drilling oil wells ..... May 25
Deepest hole, The ..... Feb. 15
Don't cool gas compressor cylinders ..... Apr. 19
Economic danger ahead ..... May 25
Electronic cooking ..... Dec. 21
Explosion-proof equipment ..... Apr. 19
Farthest off-shore well ..... Sept. 21
Fracturing dense underground formations ..... Mar. 19
Guide to instrumentation literature ..... Sept. 21
Keep cool with light colored paints ..... Apr. 19
Micro-miniature vacuum tubes ..... June 17
Microballoons ..... Mar. 19
Offshore drilling island ..... July 17
Oil and gas in the Northwest ..... Dec. 21
Petrochemicals ..... Mar. 19
Petrochemicals and natural gas ..... Dec. 21
Public vs. private power development ..... Oct. 25
Raw feed for synthetic ammonia plants ..... Jan. 21
Rechargeable flashlight battery ..... June 17
Reinforced plastic pressure vessels ..... May 25
Research by outside purchase ..... Sept. 21
Rubber gaskets ..... Jan. 21
Shale oil reserve estimates rise ..... June 17
Simplified helium leak detector ..... Aug. 19
Solar energy ..... Feb. 15
Spray-can aerosols ..... Aug. 19
Synthetic "natural" rubber ..... Jan. 21
Underwater "hot tap" ..... Mar. 19
Weights and measures ..... Feb. 15

Thermally Thinking by J. Fred Ebdon

Annual survey previewed ..... Feb. 6
Are today's engineers educated? ..... Jan. 6
Cooperation within companies ..... June 6
Gas industry affected by the Suez crisis? ..... Oct. 6
Integrated public relations program needed ..... Mar. 6
Intrastate and interstate gas ..... Aug. 6
Remove the penalty for using gas appliances ..... Sept. 6
Research work in gas industry ..... July 6
Sound public relations program, A ..... Apr. 6
Specialization vs. "know-your-industry" ..... Nov. 6
Year-end reflections ..... Dec. 6

Washington, by N. R. Regeimbal

After-effects of Harris bill still keep popping up ..... Sept. 96
Anticipate setbacks in use of fair field price ..... July 95
As summer comes to Washington ..... June 15
Coal operators, union join in market fight ..... Dec. 80
Coal interests threaten "conservation" fight ..... Sept. 15
Congress airs kind of control in gas bill debate ..... Feb. 128
Delaying tactics begin in Trans-Canada fight ..... July 94
Election results will have major impact on industry ..... Oct. 15
FPC takes first major step to control gas producers ..... July 15
Harris bill veto will be subject for lengthy debate ..... Apr. 15
Houston-Coastal expect FPC approval by Jan. 1 ..... Dec. 17
Industry leaders still seek compromise legislation ..... Nov. 19
Industry resigned to living with FPC ..... May 15
IRS clears up tax troubles ..... July 97
Lobbyists may run afoul of tax deduction law ..... Aug. 17

Midwestern Gas proposal faces stiff battle for FPC approval ..... May 15
President's veto snags Harris bill ..... Mar. 15
Steel strike won't hamper work on Trans-Canada line .... Sept. 15
TGT import plan faces opposition ..... Apr. 16
U. S. gets inquiries on gas system loans ..... July 15

GENERAL ARTICLES

AGA convention parade—1956 ..... Dec. 72
AGA returns to Atlantic City for 38th annual convention .. Oct. 77
American Louisiana pipeline, The—by J. Fred Ebdon 16 distribution companies increase volumes of natural gas ..... Oct. 64
Formulators and fabricators ..... Oct. 69
The "expanding inch" ..... Oct. 127
Pipeline design ..... Oct. 129
The construction operation ..... Oct. 140
Line coating, cathodic protection ..... Oct. 157
Anti-trust ruling may affect gas industry communication system lease-maintenance agreements—by Frank M. Chapman ..... Mar. 73
Application of salt crock and soil stress tests in evaluation of protective coatings—by Paul W. Lewis ..... Mar. 58
Citizens Gas adds two towns to its distribution system .... Sept. 68
Consumers Gas streamlines office procedures to keep pace with demand for natural gas—by C. R. Brewer .. Sept. 59
East Ohio puts main under rail bridge to serve Solon —by George S. Beigie ..... Nov. 47
Gas industry construction budgets ..... Apr. 53
Gas industry construction estimates reaches $7.3 billion for 1956-1959 ..... Sept. 70
Hope case set pattern for a decade of regulation ..... Jan. 54
In the decade since the war ..... Jan. 39
In the distribution operation, engineering has come into its own—by J. Fred Ebdon ..... Jan. 40
In sales, a cavalcade of ideas ..... Jan. 44
Developments in gas utilization during the past decade—by Guy Corfield ..... Jan. 48
Ever increasing importance of mobile radio facilities—by Frank Chapman ..... Jan. 51
Hope case set pattern for a decade of regulation ..... Jan. 54
Pipelines nearly doubled their mileage—by J. Fred Ebdon ..... Jan. 107
Underground storage has made possible a substantial growth in peak loads since 1945 ..... Jan. 111
Gas pipelines—proving ground for microwave radio —by Frank M. Chapman ..... Jan. 112
Industry cooperates to help Portland Gas in period of emergency ..... Apr. 74
Interior Secretary Seaton describes himself as a "middle-of-the-roader"—by Neil R. Regeimbal ..... Aug. 114
Million new customers in 1955 helped push the gas industry to all-time record highs, A—by Dean H. Mitchell ..... Jan. 35
Plastic piping usage up in 1955 ..... Mar. 67
Sales of LPG hit 6.2-billion gal. mark in 1955 ..... Oct. 190
"Scenic Inch" delivers gas to nation's industrial frontier .. Oct. 82
Story of Peoples Gas—by J. Fred Ebdon ..... May 53
1. Development of an integrated gas company ..... May 54
2. Operation of an integrated system ..... May 58
3. Peoples Gas serves million customers ..... May 59
4. Terminal storage is big factor in growth of Peoples Gas system ..... May 63
5. Twin pipelines feed Peoples Gas system from Texas Panhandle ..... May 151
6. Big-inch line brings gas to Chicago from Gulf Coast ..... May 157
7. Peoples Production explores for gas in Gulf of Mexico ..... May 161
Tests predict performance of plastic pipe at low temperatures—by J. W. Minton ..... Mar. 60
Western Washington celebrates arrival of natural gas—by J. Fred Ebdon ..... Dec. 124
What are the reasons for underground gas storage? by Douglas Ball ..... Aug. 95
Who Will Distribute Natural Gas in Idaho? ..... Feb. 98

MANAGEMENT

Anti-trust ruling may affect gas industry communication system lease-maintenance agreements—by Frank M. Chapman ..... Mar. 73
Bank financing for the gas industry—by Rushton L. Ardrey and E. E. Monteith Jr. ..... Mar. 84
ConEdison uses electronic computer for payroll accounting ..... Dec. 60
Exhaustive study leads to purchase of electronic computing system for payroll accounting—by John L. Liecty ..... Dec. 54
In the distribution operation, engineering has come into its own—by J. Fred Ebdon ..... Jan. 40
Management brings gas to the Pacific Coast—by Paul Kayser ..... Oct. 72
Memomotion study aids utility—by H. A. Schopler ..... June 43
Novel approach to maintenance and replacement problems—by B. A. Margo ..... Feb. 44
Push-button billing system speeds accounting work for Dominion Natural ..... Oct. 89
Survey of the personnel and administrative side of corrosion control, A ..... Mar. 49
Training pays everyone—by Dennis L. Newberry ..... Apr. 155
Training—The key to an effective cathodic protection system—by T. R. Stilley and W. H. Hobbs ..... Mar. 54
What does an investor look for in gas company stock?—by Frederick W. Page ..... Feb. 49

MANUFACTURED GAS PRODUCTION

Australia gasifies its brown coal—by H. Bowdon Fletcher ..... July 52
Continuously integrated flow meter provides accurate gas measurement—by R. Y. Pogontcheff ..... June 58
Fundamentals of gas mixing—by C. W. Warner
1. Control of gas mixing processes ..... Feb. 37
2. A look at the equipment ..... Mar. 75
3. Typical control systems, proportional peak shaving, and standby control ..... Apr. 83

NEWS DEVELOPMENTS

FPC Regulation

Court dismisses injunction against FPC Order 174-B .... Mar. 170
Escalation clause hit by FPC ..... June 152
Fair field price formula fails court test ..... Jan. 132
FPC asks for 10-cent/Mcf rate in Cities Service Case .... Jan. 138
FPC orders Panhandle to refund $36 million ..... Feb. 140
Gas bill target of gas company council ..... Jan. 140
June 7, 1954 rate is effective rate, rules FPC ..... Jan. 134
Producer wants to end interstate gas sale ..... Oct. 193
Producers failed to show cause in termination case ..... Mar. 179
Settlement reached in Cities Service rate case ..... July 142
Supreme Court rules in unilateral rate action ..... Apr. 172

Foreign & Import

Canadians agree to $80 million Trans-Canada loan ..... July 132
Certificate to import Canadian gas doubles Pacific's delivery capacity ..... Jan. 126
Northern Ontario to have $11 million gas system ..... June 102
TET files with FPC for Mexican import okay ..... Feb. 136
TET receives okay to import gas ..... Dec. 126
Trans-Canada gains finance extension ..... Dec. 126
Trans-Canada gets third time extension ..... Apr. 170
Trans-Canada promised $80 million government loan .... June 152
Trans-Canada signs up large sales contract ..... Sept. 138

General

API issues 4th edition of pipe welding standard ..... Aug. 130
Columbia reorganization plan goes into effect ..... Oct. 194
Columbia subsidiaries make moves to reorganize ..... Jan. 79

First natural gas is planned for Vermont ..... Nov. 80
Gas transport by water tested in Louisiana ..... Mar. 109
Idaho distribution controversy settled ..... Aug. 74
Idaho gas distribution plans upheld by court ..... Oct. 99
Idaho PUC authorizes gas financing plans ..... Nov. 83
Million customers a year forecast by AGA ..... Dec. 76
Nebraska community may buy distribution system ..... Aug. 68
New highway bill has reimbursement clause ..... Mar. 101
Proved gas reserve estimates reach all-time high of 223.7 trillion cu ft ..... Apr. 167
Stock or cash dividends paid by Citizens Utilities ..... June 103
TGT links five stations with 700-mile microwave ..... Aug. 134
Two companies plan merger with Brooklyn ..... Oct. 93
Underground gas storage exceeds 2 trillion cu ft ..... July 74

Pipeline News

FPC denies motion to dismiss TGT-Midwestern applications ..... Nov. 118
Natural gets FPC okay; Lone Star's plan denied ..... Mar. 177
Natural proposes system addition of 425 MMcf/day ..... Apr. 171
Newly organized company would serve Carolinas ..... Apr. 168
Northern gets okay for 354 miles of line ..... Nov. 128
Offshore gas line to tap Louisiana gas supply ..... Jan. 142
PG&E to build new 200-mile pipeline ..... Dec. 126
Sign contracts for Florida gas service ..... Oct. 102
SoCal and SoCounties plan line construction ..... Feb. 146
Transco will expand system by 105 MMcf ..... Apr. 174

State & Local Regulation

Escalator clause upheld by Virginia high court ..... Jan. 81
Fair value determined by commission, says state court ..... Apr. 98
Gas and oil conservation bill urged for Colorado ..... Feb. 138
High court rejects Idaho Falls co-op ..... Dec. 76
Missouri court upholds Laclede's storage plan ..... Sept. 76
Pennsylvania turns down automatic rate change ..... Sept. 76
Unclaimed gas refunds ruled property of state ..... Jan. 76
Validity of Ark-La's rate hike upheld by court ..... July 74
Voters choose private ownership of power service ..... Jan. 80
Voters turn down municipal ownership plan ..... Sept. 79

TRANSMISSION

Aerial survey speeds construction—by Fred Casler ..... May 168
American Louisiana Pipeline, The—by J. Fred Ebdon
1. The "expanding inch" ..... Oct. 127
2. The pipeline design ..... Oct. 129
3. The construction operations ..... Oct. 140
4. Line coating, cathodic protection ..... Oct. 157
Application of gas turbine-driven centrifugal pipeline compressors—by A. L. Vaughan ..... Nov. 102
Automatic position welding process for piping—by Louis C. McNutt ..... Apr. 158
Automation in the gas industry—by H. E. Pinkerton and J. G. Stephenson
1. Automatic control in gas transmission systems .. July 110
2. Implementing the automation of gas pipelines ... Aug. 101
Bechtel uses automatic welding to double joint on Westcoast's pipeline ..... Aug. 112
Bellows-type orifice meter tested for gas measurement—by Ken Kridner ..... July 105
Big shove, The ..... Feb. 114
Compressor station emergency shutdown and venting system—by C. D. Catt and J. R. Hoffman ..... Apr. 137
Design and application of centrifugal compressors—by David M. Salls ..... Dec. 105
Experience develops a preventive maintenance program for compressor engine magnetos—James T. Carter Jr. ..... May 174
Explosion that shouldn't have happened—but did, An—by R. L. Boyer ..... May 184
FPC authorizations add to pipeline network ..... Nov. 113
For control systems—the simplest acceptable approach is the best—by C. S. Beard ..... Apr. 148
Fuel-starved Pakistan develops own gas supply ..... Jan. 119
Gas dispatcher's experience with turbine compressor stations—by H. B. Lafferty ..... Feb. 109
Gas pipelines—Proving ground for microwave radio—by Frank M. Chapman ..... Jan. 112
GAS visits a new coating yard ..... Mar. 152
Gasoline plants: How they operate and their importance to distribution companies—by A. H. Weil ..... Feb. 121
High-silicon cast iron anodes in ground bed service—by Marshall E. Parker ..... Mar. 141
How to Design Your Pipeline—by S. D. Ford ..... Feb. 116
Hydraulic drives for cooling fans at compressor stations—by Richard C. Jackson and John W. Morton .. Sept. 107
Internal maintenance solves many transmission problems—by A. C. Curtis and J. C. Cooper ..... Sept. 113
Lessons learned from measurement of full well stream gas—by L. G. Cable and Joe E. Eskew Jr. .... Mar. 154
Mid-Continent Pipe Line Co. develops gas scrubber-safety regulator unit—by D. W. VanVleck ..... June 142
New compressor station increases delivery to San Diego utility—by James Joseph ..... June 132
New 1130-bhp gas turbine shown to industrial press editors—by Murray K. Simkins ..... Sept. 135
Ninth Annual *GAS* survey: Gas industry construction budgets ..... Apr. 53
Northern Natural cuts overhead with spare parts control system ..... July 116
On-stream pigging techniques—by Paul L. Hughen .... Sept. 122
Operation of pipeline in Pakistan poses problems—by H. H. McCamish ..... Nov. 93
Out in the Gulf for gas ..... Dec. 118
Peoples Gas Story, The—by J. Fred Ebdon
Twin pipelines feed Peoples Gas system from Texas Panhandle ..... May 151
Big-inch line brings gas to Chicago from Gulf Coast .. May 157
Peoples Production explores for gas in Gulf of Mexico ..... May 161
Pipelines nearly doubled their mileage—by J. Fred Ebdon ..... Jan. 107
Prevention of freezing at metering, regulating stations—by Howard S. Gray ..... June 121
Proved gas reserve estimates reach all-time high of 223.7 trillion cu ft ..... Apr. 167
Remote control of a gas pipeline compressor station—by R. LoChiano ..... Dec. 109
Satellite compressor station goes on mainline service .... Mar. 149
SoCal stresses noise control at Playa del Rey compressor facility—by Raymond C. Baird ..... Apr. 142
Southern California Gas deterges a mountain pipeline—by A. S. Olson ..... June 125
Standby power units protect unattended compressor station for Panhandle Eastern—by William R. Allen ..... June 135
Training pays everyone—by Dennis L. Newberry ..... Apr. 155
Trans-Canada is making pipeline ..... Nov. 98
Transco uses reciprocating engine to drive centrifugal compressor—by George B. McIntosh Jr. ..... May 164
Underground storage has made possible a substantial growth in peak loads since 1945 ..... Jan. 111
Waterway is right-of-way for Louisiana gathering line .. June 138
What are the reasons for underground gas storage?—by Douglas Ball ..... Aug. 95

UTILIZATION AND SALES PROMOTION

AGA public information program redoubles efforts—by Jac A. Cushman ..... Feb. 58
Built-in gas kitchens aid sales of new Texas tract homes ..... Dec. 57
Built-in kitchens are great—if they are planned right—by Mary E. Huck ..... May 81
Continuous aluminum melting furnace improves permanent mold casting ..... Apr. 79
Developments in gas utilization during the past decade—by Guy Corfield ..... Jan. 48
Draft control methods and equipment—by Walter B. Kirk and E. H. Perry Jr. ..... June 55
Gas dries coated paper and saves $20,000 yearly—by H. E. Russell ..... Mar. 91
Gas drying equipment speeds production in Seattle printing plant ..... Aug. 52
Gas plays important role in huge magnesium foundry .... Oct. 83
Gas runs new Dallas hotel ..... Mar. 83
In sales, a Cavalcade of ideas ..... Jan. 44
Let's look at the heat pump—by Thomas Lee Robey ..... May 74
Natural gas and plastic pipe team up to take over irrigation load in west Texas—by Ruel McDaniel ..... Mar. 70
Natural gas used to dry air for supersonic flight simulator ..... Nov. 60
Prototype of gas air conditioner unveiled for press ..... Nov. 64
Quick surface heat-up through tight control boosts die-block production ..... Feb. 56
Two gas heaters solve hot water problem at school ..... Sept. 63

— INDEX TO ADVERTISERS —

American Meter Co. 18, 19, 33, 34
American Recording Chart Co. 95
American Telephone & Telegraph Co. 139
American Tractor Corp. 13
Anchor Petroleum Co. 102
Aqua Survey & Instrument Co. 102

Ball Associates 102
Barber-Greene Co. 42
Black, Sivalls & Bryson Inc. Third Cover
Blaw-Knox Co. 120
Bucyrus-Erie Co. 77
Butane-Propane Power Manual 101

Cast Iron Pipe Research Assn. 26, 27
Chaplin-Fulton Mfg. Co. 29
Clark Bros. Co. 130, 131
Cleveland Trencher Co. 79
Connelly Inc. 94
Crane Co. 116
Crose Mfg. Co., M. J. 143
Cutler-Hammer Inc. 25

Dearborn Chemical Co. 111
Dow Chemical Co. 28
Drake & Townsend Inc. 98
Dresser Industries, Inc.
Clark Bros. Co. 130, 131
Dresser Manufacturing Div. 41
Roots-Connersville Blower Div. 133
DuPont de Nemours & Co., Inc., E. I. 24

Eastman Chemical Products 35
Ebasco Services, Inc. 36
E-I-M Co., Inc. 115

Federal Telephone & Radio Corp. 135
Fish Engineering Corp. 32
Fisher Governor Co. 22, 23
Fisher Research Laboratories, Inc. 95
Foxboro Co. 137

GAS Subscription Order 88
General Electric Co. 128
Grayson Controls Div., Robertshaw-Fulton Controls Co. 70, 71
Greenlee Tool Co. 92
Grove Valve & Regulator Co. 9

Harper-Wyman Co. 74, 75
Hays Manufacturing Co. 97
Hill, Hubbell & Co. 16
Homestead Valve & Manufacturing Co. 14
Houston Contracting Co. 138
Hydrauger Corp. 96

Ingersoll Rand Co. 127
International Business Machines Corp. 40

Kaiser Steel Corp. 112

Lancaster Meter Parts Co. 88
Ledeen Manufacturing Co. 136
Le Roi Div., Westinghouse Air Brake Co. 37
L.O.F. Glass Fibers Co. 141
Lone Star Steel Co. 134

Maloney Co., F. H. 104
Mathey Machine Works, Inc., C. A. 142
Maxitrol Co. 80
Meriam Instrument Co. 94
Milwaukee Gas Specialty Co. 63
Motorola Communications & Electronics, Inc. 132
Mueller Co. 3, 4, 5

National Tube Div., U. S. Steel Corp. 38
Naugatuck Chemical Div., U. S. Rubber Co. 15
Niagara Mohawk Power Corp. 102
Nicolet Industries 146
Nordstrom Valve Div., Rockwell Manufacturing Co. 67, 68
Norton-McMurray Manufacturing Co. 93
Norwalk Valve Co. 100

Oronite Chemical Co. 1

Parsons Co. 91
Peerless Manufacturing Corp. 96
Pittsburgh Equitable Meter Div., Rockwell Manufacturing Co. Front Cover, 30, 31

Reed Manufacturing Co. 100
Refinery Supply Co. 99
Reliance Regulator Div., American Meter Co. Second Cover
Reynolds Gas Regulator Co. 90
Ridge Tool Co. 89
Robertshaw-Fulton Controls Co., Grayson Controls Div. 70, 71
Rockwell Manufacturing Co. Nordstrom Valve Div. 67, 68
Pittsburgh Equitable Meter Div. 30, 31
Roots-Connersville Blower Div., Dresser Industries, Inc. 133

Safety Gas Main Stopper Co. 90
Sharples Chemicals, Inc. 7
Skelly Oil Co. 102
Skinner Co., M. B. 39
Somerville Construction Co. 146
Sprague Meter Co. Fourth Cover
Standard Pipeprotection, Inc. 145

Tapecoat Co. 144
Telsco Fittings Div., Texas Lawn Sprinkler Co., Inc. 98
TerraTrac, American Tractor Corp. 13
Thermac Co. 82
Toledo Pipe Threading Machine Co. 101
Tube Turns, Inc. 123

United Pipe Utility Suppliers, Inc. 20
U. S. Pipe & Foundry Co. 10
U. S. Rubber Co., Naugatuck Chemical Div. 15
U. S. Steel Corp., National Tube Div. 38

Vulcan Rubber Products, Inc. 92

Warren Petroleum Corp. 100
Webster Engineering Co. 78
Westinghouse Air Brake Co., Le Roi Div. 37
Wilkinson Products Co. 99
Williams Bros. 144
Williamson, Inc., T. D. 140
W-K-M Mfg. Co., Inc. 119

Youngstown Sheet & Tube Co. 125